

REMARKS

Claims 1, 2, 4, and 5 are now in the application. Reconsideration of the application is respectfully requested in light of the following remarks.

Claims 1, 2, 4, and 5 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,480,124 to Mueller et al. in view of U.S. Patent No. 6,713,422 to Menger et al.

The Office Action states that the pending claims have been rejected on the same grounds set forth in the December 28, 2007 Office Action. Specifically, the Office Action asserts that modifying Mueller by the process taught in Menger would not render the process in Mueller inoperable.

The Office Action, at the bottom of page 3, concedes that the features picked and chosen from Menger and Mueller to manufacture the rejection in the Office Action are separate and unrelated. Nevertheless, despite this concession, the Office Action asserts, at page 4, lines 7-8, that both references are reasonably pertinent to the particular problem with which Applicants are concerned. Further, the Office Action asserts, without providing documentary evidence, that cleaning a deactivated catalyst with steam does not negatively affect the function of the catalyst for hydrogenation. Applicants respectfully submit that a deactivated catalyst, by definition, is rendered unsuitable for the intended purpose of catalyzing a chemical reaction. What is more, it is the intended purpose of the primary reference to Mueller to purify polytetramethylene ether glycol by hydrogenation. By replacing hydrogen with steam, as suggested in the Office Action, the process in Mueller would be rendered unsatisfactory for its intended purpose because the hydrogenation of polytetramethylene requires hydrogen and cannot be accomplished by the water molecules in steam. It is irrelevant in this context whether or not the catalyst in Mueller can be subjected to a separate and unrelated treatment. Judicial precedence precludes the application of Mueller because the proposed modification of Mueller set forth the Office Action would render Mueller unsatisfactory for its intended purpose.

In addition, even if the references to Mueller and Menger could somehow be combined, the Office Action ignores the unexpected results that are achieved by the claimed process. Specifically, as set forth on page 2, lines 22-23, of the specification, the claimed process provides for purified catalysts characterized in that an eluate obtained in the steam purification has an evaporation residue ER of 2% or less. This remarkable result could not have been expected from the disclosure of Mueller, which does not even contemplate working-up of an at least partially deactivated hydrogenation catalyst, and Menger, which nowhere suggests hydrogenation catalysts.

Applicants note that there is a striking difference between a color number hydrogenation of a polymer as taught by Mueller, a work-up procedure for a polymerization catalyst which has been used in the polymerization of tetrahydrofuran to polytetrahydrofuran as taught by Menger, and the claimed subject matter, which is directed to a work-up procedure for a catalyst that has been used in the color number (reducing) hydrogenation of the polymer polytetrahydrofuran.

Mueller is concerned with the purification of the polymerization product PTHF to produce a PTHF which matches market demands for ultra pure products. Menger intends to clean the polymerization catalyst used in the polymerization of tetrahydrofuran to PTHF to make an ecologically compatible disposal possible. A re-use of the catalyst is not intended and not feasible.

The claimed subject matter is directed to the purification of a used a color number hydrogenation catalyst, making an ecologically compatible disposal possible. However, the claimed catalyst is different in chemical structure and composition from a catalyst used for polymerization, such as the catalyst used in Mueller. In addition, the pollutants on a used polymerization catalyst differ in their composition from the pollutants on a hydrogenation catalyst.

Further, even if it was permissible to modify the references as suggested, the Office Action has used impermissible hindsight reasoning in manufacturing its rejection of the claims.

Focusing on the obviousness of substitutions or differences is improper; rather, the claimed invention must be considered as a whole. *Gillette Co. v. S.C. Johnson & Son Inc.*, 919 F.2d 720, 724 (Fed. Cir. 1990). Moreover, it is impermissible simply to engage in a hindsight reconstruction of the claimed invention, using the patent as the template and selecting elements from references to fill the gaps. E.g., *In re Rouffet*, 149 F.3d 1350, 1358 (Fed. Cir. 1998), citing *In re Gorman*, 933 F.2d 982, 986 (Fed. Cir. 1991), citing in turn *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143 (Fed. Cir. 1985).

Simply because claim features may be known in the art is insufficient for a finding of obviousness. “[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l v. Teleflex Inc.* 127 S. Ct. 1727, 1731 (2007). Rather, there must be a well reasoned or articulated rationale to combine the references or “something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.” E.g., *Rouffet* 149 F.3d at 1356, and the cases cited therein. See also *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004), citing *Rouffet*; *Sibia Neurosciences*, 225 F.3d at 1356; *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998). As variously stated by the Federal Circuit, there must be some reason, teaching, suggestion, interference, motivation, or incentive in the prior art to make the selections made by the inventor and combine the prior art to produce the claimed invention. E.g., *Rouffet*, 149 F.3d at 1355; *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996); *Gorman*, 933 F.2d at 986-987; and *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n.24 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986). Further, a motivation to combine only flows from the combination that is, on balance, desirable, not merely feasible. See *In re Fulton*, 391 F.3d at 1200, citing *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000). As explained by the *Winner Int’l Royalty Corp.* court, “[t]rade-offs often concern what is feasible not what is, on balance, desirable. Motivation to combine requires the latter.”

The United States Supreme Court, in *KSR Int’l*, 127 S. Ct. at 1740-41, cited with approval the Federal Circuit’s reasoning that “rejections on obviousness grounds cannot be

sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Accordingly, even if the references could somehow be interpreted to together teach all of the features of the claimed subject matter, the Office Action failed to provide a proper rationale as to why a skilled artisan would have combined Mueller with Menger to achieve the presently claimed subject matter.

The reasons set forth in the Office Action are insufficient to explain why a skilled artisan would have been motivated to combine the applied references in the asserted matter. The Office Action asserts that one having ordinary skill in the art would have been motivated to combine the two references because the catalyst used in Mueller would be deactivated or partially deactivated in the process. However, nowhere does Mueller suggest that the catalyst could or should become deactivated or would need to be disposed of. Quite to the contrary, Mueller teaches, at col. 3, lines 19-22, that the hydrogenation takes place under unexpectedly mild conditions with the amount of hydrogen consumed being immeasurably small. A person having ordinary skill in the art would not conclude from this disclosure that the catalyst in Mueller would become deactivated over time, but rather that the catalyst lasts longer than was previously known because it can be used under unexpectedly mild conditions.

Moreover, the Office Action asserts, at page 4, lines 11-12, that “Menger teaches the purification of polytetramethylene ether glycol in the presence of a hydrogen [sic] catalyst.” This assertion is incorrect. Menger teaches working-up of polymerization catalysts, specifically, as set forth at page 2, lines 29-30. Menger teaches that the polymerization catalysts are sheet silicates, in particular acid-activated montmorillonite. Menger neither teaches purification of polytetramethylene ether glycol nor hydrogenation catalysts.

In view of the above, each of the presently pending claims in this application is believed to be in the immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 12810-00111-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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